ADVANCED PUMP MOTOR CONTROL FOR WATER AND WASTEWATER OPERATORS

Day 1

8:00 - 8:30	Welcome and Registration, Overview of Course
8:30 - 9:00	Operator Discussion
9:00 – 10:15	Section 1 - Electrical Power Supply Issues and Motors (review of motors and power supply types)
10:15 – 10:30	Break
10:30 - 12:00	Exercise 1 – Motor and Power Worksheets
	Exercise 2 – Dirty Power Demonstration Observations
12:00 - 1:00	Lunch
1:00 - 2:30	Section 2 - Starters and Protective Devices (conventional and soft starters)
	Exercise 3 – Starter Evaluation Exercise
	Exercise 4 – Soft Starter Exercise
2:30 – 2:45	Break
2:45 – 3:45	Section 3 Variable Frequency Drives
	Exercise 5 – VFD Exercise
3:45 - 5:00	Exercise 6 Pumping Equipment Operational Data (discussion and demonstration of pumping equipment)
5:00	Adjourn

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Day 2

08:00 – 9:45	Section 4 Troubleshooting
	Exercise 7 Troubleshooting Exercises
9:45 - 10:00	Break
10:00 - 12:00	Section 5 Control Component Review
	Exercise 8 Control Component Testing
12:00 - 1:00	Lunch
1:00 – 2:45	Section 6 Ladder Diagrams and Logic Lecture
	Exercise 9 Panel Schematic Exercise.
2:45 – 3:00	Break
03:00 - 05:00	Exercise 10 Student Panel Construction
5:00	Adjourn

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Day 3

08:00 - 09:30	Panel Inspection and Testing
09:30 - 09:45	Break
09:45 - 12:00	Section 7 Analog and Digital Control Devices and Loops, PLC and VFD Inputs and Output Conventions
	Exercise 11 Analog 4-20 ma Loop Analysis and Testing.
1:00 - 2:00	Section 8 PLC Programming and Configuration
2:00 - 2:15	Break
2:15 – 4:00	Exercise 12 PLC Testing Configuration
4:00 – 4:30	Closeout
4:30	Adjourn